

AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A zoom flash comprising:

a light emitter;

a zoom driver which moves said light emitter along an axis to vary an illumination angle;

a detector which detects a zoom position of said light emitter;

a calculator which calculates a pre-flash emission level according to the detected zoom position so that illuminance on an object at a predetermined distance is substantially constant regardless of a variation of said illumination angle;

a controller which activates said light emitter to emit a preliminary flash emission, before a main flash emission, by supplying a voltage corresponding to said pre-flash emission level for said light emitter; and

a memory in which a maximum guide number that varies in accordance with said zoom position, a constant predetermined reference guide number, and a predetermined reference flash emission level serving as a correction constant are stored,

wherein said maximum guide number, said reference guide number, and said reference flash emission level are stored in said memory, and wherein said calculator calculates a pre-flash emission level using a predetermined relationship between the

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reference flash emission level, the reference guide number and the maximum guide number corresponding to the detected zoom position.

2. (Previously Presented) The zoom flash according to claim 1, wherein said calculator calculates said pre-flash emission level so that an effective guide number is substantially constant regardless of said variation of said illumination angle.

3. Canceled

4. (Previously Presented) The zoom flash according to claim 1, further comprising a terminal connector via which said zoom flash is electrically connectable to a camera body; wherein said zoom driver moves said light emitter in accordance with a focal length of a photographing lens of the camera body when said zoom flash is electrically connected to the camera body.

5. (Previously Presented) The zoom flash according to claim 1, wherein said control device controls said light emitter to perform a pre-flash emission in a flat emission mode.

6. (Previously Presented) A flash photography system having a camera body and at least one zoom flash, said at least one zoom flash being activatable to emit a preliminary flash emission before a main flash emission, wherein said at least one zoom flash comprises:

a light emitter;

a zoom driver which moves said light emitter along an axis to vary an illumination angle; and

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a detector which detects a zoom position of said light emitter;

wherein one of said camera body and said at least one zoom flash comprises:

a calculator which calculates a pre-flash emission level according to the detected zoom position so that an illuminance on an object at a predetermined distance is substantially constant regardless of a variation of said illumination angle;

a controller which activates said light emitter to emit a preliminary flash emission by supplying a voltage corresponding to said pre-flash emission level for said light emitter before a main flash emission; and

a memory in which a maximum guide number that varies in accordance with said zoom position, a constant predetermined reference guide number, and a predetermined reference flash emission level serving as a correction constant are stored;

wherein said maximum guide number, said reference guide number, and said reference flash emission level are stored in said memory, and wherein said calculator calculates a pre-flash emission level using a predetermined relationship between the reference flash emission level, the reference guide number and the maximum guide number corresponding to the detected zoom position.

7. (Previously Presented) The flash photography system according to claim 6, wherein said calculator calculates said pre-flash emission level so that an effective guide number is substantially constant regardless of said variation of said illumination angle.

8. Canceled

9. (Previously Presented) The flash photography system according to claim 6, further comprising a terminal connector via which said zoom flash is electrically connectable to a camera body;

wherein said zoom driver moves said light emitter in accordance with a focal length of a photographing lens of said camera body when said zoom flash is electrically connected to said camera body.

10. (Previously Presented) The flash photography system according to claim 6, wherein said controller controls said light emitter to perform a pre-flash emission in a flat emission mode.

11. (Currently Amended) A zoom flash comprising:

a light emitter and a lens element;

a zoom driver ~~which moves said light emitter along an axis to~~ that varies a distance between said light emitter and said lens element to vary an illumination angle;

~~a detecting device~~ detector which detects a zoom position of said light emitter distance set by said zoom driver;

~~a calculation device~~ calculator which calculates a pre-flash emission level according to the ~~detected zoom position~~ distance set by said zoom driver so that illuminance on an

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object at a predetermined distance is substantially constant regardless of a variation of said illumination angle; and

a ~~control device~~ controller which activates said light emitter to emit a preliminary flash emission, before a main flash emission, by supplying a voltage corresponding to said pre-flash emission level for said light emitter; and

a memory that stores data related to a maximum guide number that varies in accordance with said distance and related to a constant predetermined reference guide number.

wherein said calculator calculates a pre-flash emission level utilizing the data in said memory.

12. (Canceled)

13. (Currently Amended) The zoom flash according to claim 11, ~~further comprising~~
wherein:

~~a memory in which a~~ said memory stores said maximum guide number that varies in accordance with said zoom position, ~~[[a]]~~ said constant predetermined reference guide number, ~~predetermined as a constant~~ and a reference flash emission level predetermined as a correction constant ~~are stored;~~ and

~~wherein said maximum guide number, said reference guide number, and said reference flash emission level are stored in said memory, and wherein said calculation device~~
calculator calculates a pre-flash emission level using the following equation:

$$V_{fp} = V_a \times (G_{nos}/G_{no(zoom)})^2$$

wherein “V_{fp}” represents said pre-flash emission level;

“V_a” represents said reference flash emission level;

“G_{nos}” represents said reference guide number; and

“G_{no(zoom)}” represents said maximum guide number corresponding to the detected zoom position.

14. (Previously Presented) The zoom flash according to claim 13, further comprising a terminal connector via which said zoom flash can be electrically connected to a camera body;

wherein said zoom driver moves said light emitter in accordance with a focal length of a photographing lens of said camera body in a case where said zoom flash is electrically connected to said camera body.

15. (Canceled)

16. (Currently Amended) A flash photography system having a camera body and at least one zoom flash, said at least one zoom flash being activated to emit a preliminary flash emission before a main flash emission, wherein said at least one zoom flash comprises:

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a light emitter and a lens element;

a zoom driver ~~which moves said light emitter along an axis to~~ that varies a distance between said light emitter and said lens element to vary an illumination angle; and

~~a detecting device~~ detector which detects ~~a zoom position of said light emitter the distance set by said zoom driver; and~~

a memory that stores data related to a maximum guide number that varies in accordance with said distance and related to a constant predetermined reference guide number.

wherein said calculator calculates a pre-flash emission level utilizing the data in said memory.

wherein one of said camera body and said at least one zoom flash comprises:

a ~~calculation device~~ calculator which calculates a pre-flash emission level according to the ~~detected zoom position~~ distance set by said zoom driver so that an illuminance on an object at a predetermined distance is substantially constant regardless of a variation of said illumination angle; and

a ~~control device~~ controller which activates said light emitter to emit a preliminary flash emission by supplying a voltage corresponding to said pre-flash emission level for said light emitter before a main flash emission.

17. (Canceled)

18. (Currently Amended) The flash photography system according to claim 16, wherein said [[a]] memory ~~in which a~~ stores said maximum guide number that varies in accordance with said zoom position, [[a]] said constant predetermined reference guide number, ~~predetermined as a constant~~ and a reference flash emission level predetermined as a correction constant ~~are stored; and~~

~~wherein said maximum guide number, said reference guide number, and said reference flash emission level are stored in said memory, and wherein said calculation device~~ calculator calculates a pre-flash emission level using the following equation:

$$V_{fp} = V_a \times (G_{nos}/G_{no(zoom)})^2$$

wherein “V_{fp}” represents said pre-flash emission level;

“V_a” represents said reference flash emission level;

“G_{nos}” represents said reference guide number; and

“G_{no(zoom)}” represents said maximum guide number corresponding to the detected zoom position .

19. (Previously Presented) The flash photography system according to claim 18, further comprising a terminal connector via which said zoom flash can be electrically connected to a camera body;

wherein said zoom driver moves said light emitter in accordance with a focal length of a photographing lens of said camera body in a case where said zoom flash is electrically connected to said camera body.

20. (Previously Presented) The flash photography system according to claim 18, wherein said control device controls said light emitter perform a pre-flash emission in a flat emission mode.

21. (New) The flash photography system according to claim 16, the at least one zoom flash comprising a plurality of zoom flashes, wherein in a further zoom flash of said plurality of zoom flashes said memory stores data related to a further maximum guide number that varies in accordance with said distance and related to a further constant predetermined reference guide member, said further maximum guide number being different than said maximum guide number and said further constant predetermined reference guide number being different than said constant predetermined reference guide number.

22. (New) The zoom flash according to claim 11, said pre-flash emission level decreasing in accordance with an increase in a focal length of a photographing lens of a camera to which said zoom flash is connected and increasing in accordance with a decrease in the focal length of the photographing lens.

23. (New) The flash photography system according to claim 16, said pre-flash emission level decreasing in accordance with an increase in a focal length of a photographing

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lens attached to said camera body and increasing in accordance with a decrease in the focal length of the photographing lens.